

Technical training. Product information.

Combox



BMW Service

Edited for the U.S. market by:
BMW Group University
Technical Training

ST1005

3/1/2011

General information

Symbols used

The following symbol / sign is used in this document to facilitate better comprehension and to draw attention to particularly important information:



Contains important safety guidance and information that is necessary for proper system functioning and which it is imperative to follow.

Information status and national-market versions

The BMW Group produces vehicles to meet the very highest standards of safety and quality. Changes in terms of environmental protection, customer benefits and design make it necessary to develop systems and components on a continuous basis. Consequently, this may result in differences between the content of this document and the vehicles available in the training course.

As a general principle, this document describes left-hand drive vehicles in the European version. Some controls or components are arranged differently in right-hand drive vehicles than those shown on the graphics in this document. Further discrepancies may arise from market-specific or country-specific equipment specifications.

Additional sources of information

Further information on the individual topics can be found in the following:

- in the Owner's Handbook
- in the integrated service technical application

Contact: conceptinfo@bmw.de

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The information in the document is part of the BMW Group technical training course and is intended for its trainers and participants. Refer to the latest relevant BMW Group information systems for any changes/supplements to the technical data.

Information status: **January 2010**
VH-23/International Technical Training

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Combox

1. Introduction

Starting in 09/2010, ULF-SBX-High (option 6FL) and the TCU (option 639) will be gradually replaced by the Combox in all BMW models. The Combox provides the customer many new functions which are described in the following training material.

Some of these functions include:

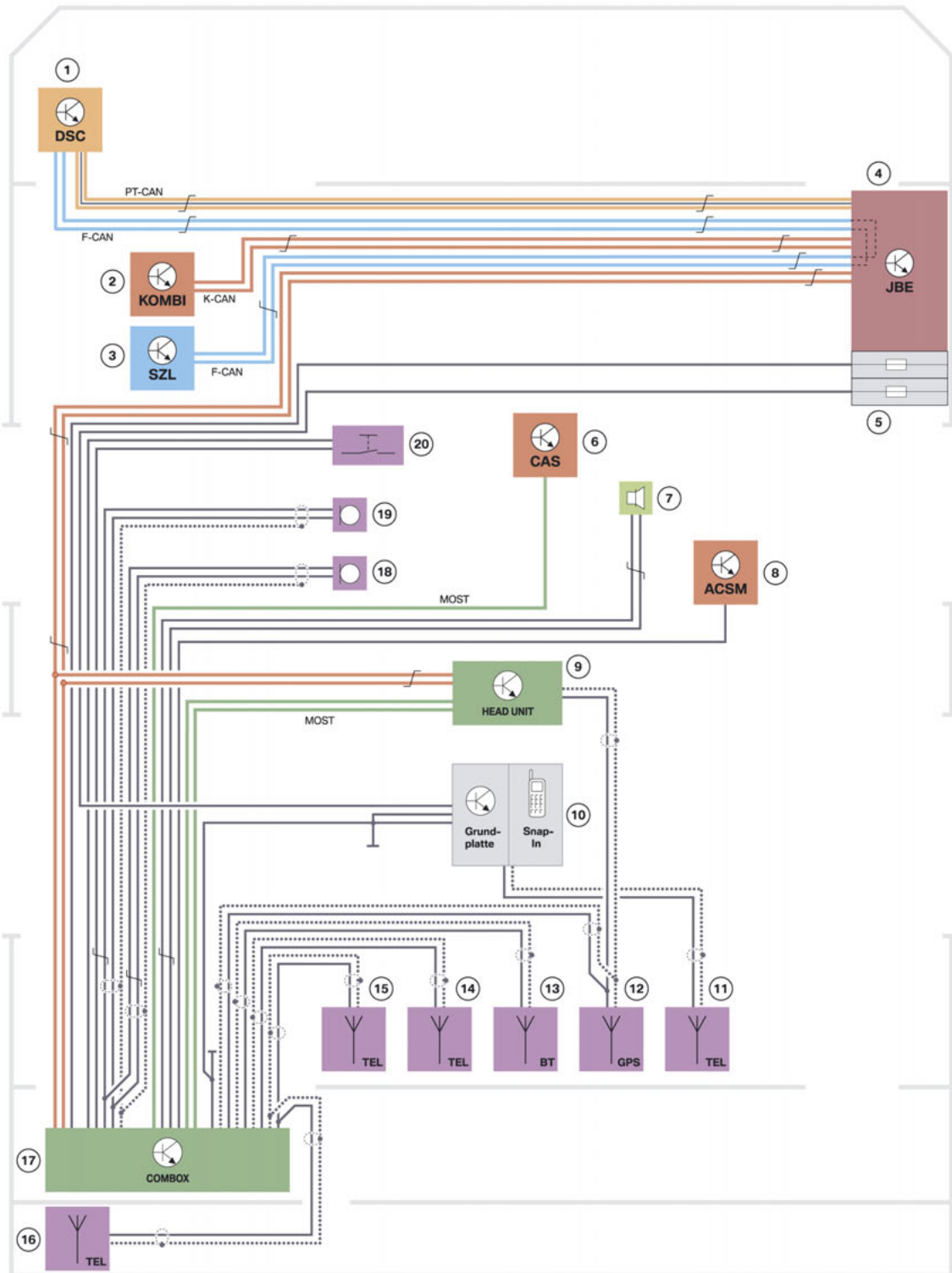
- Connection of audio players via Bluetooth
- Simultaneous connection of cell phones and audio players via Bluetooth
- Contacts with images
- Direct Bluetooth profile software update by customer via BMW website download to USB stick (Not yet available)
- Connection of most current iPhones and iPods using the original Apple USB cable
- Album cover display (for iPod, MTP players, MP3 via USB)
- Office function displays e-mail, SMS, calendar, tasks, notes and reminders from cell phone via Bluetooth.
- Video two-cable support (**Updated 03/2011**)

Combox

2. System Wiring Diagrams

2.1. L2 (E8x/E9x) and L4 (E7x) vehicles

2.1.1. Combox with telematics



TE09-2357

Combox

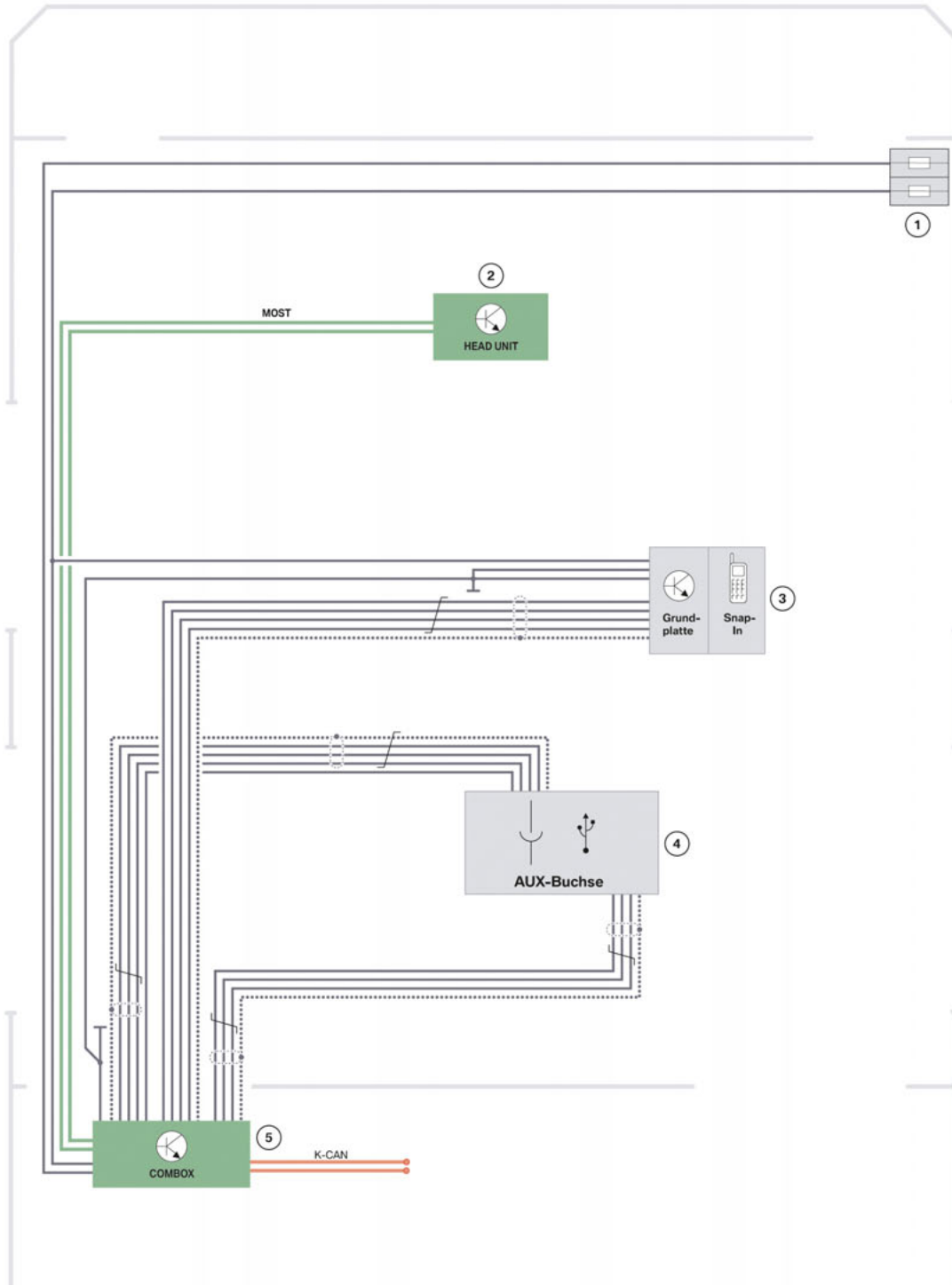
2. System Wiring Diagrams

Index	Explanation
1	Dynamic Stability Control (DSC)
2	Instrument cluster (KOMBI)
3	Steering column switch cluster (SZL)
4	Junction box electronics (JBE)
5	Front right power distribution box
6	Car Access System (CAS)
7	SOS speaker
8	Crash safety module (ACSM)
9	Head unit
10	Base plate in the center console and snap-in adapter
11	Telephone antenna 1
12	GPS antenna (connection to Combox only for vehicles without option 609)
13	Bluetooth antenna
14	Telephone antenna backup
15	Telephone antenna 2 (except E88 and E93)
16	Telephone antenna 2 (only for E88 and E93)
17	Combox
18	Microphone on steering column trim panel (only for E88 and E93)
19	Microphone in roof function center (except E88 and E93)
20	Emergency call button

Combox

2. System Wiring Diagrams

2.1.2. Combox audio interface (options 6FL and 6NF)



TE09-2356

Combox

2. System Wiring Diagrams

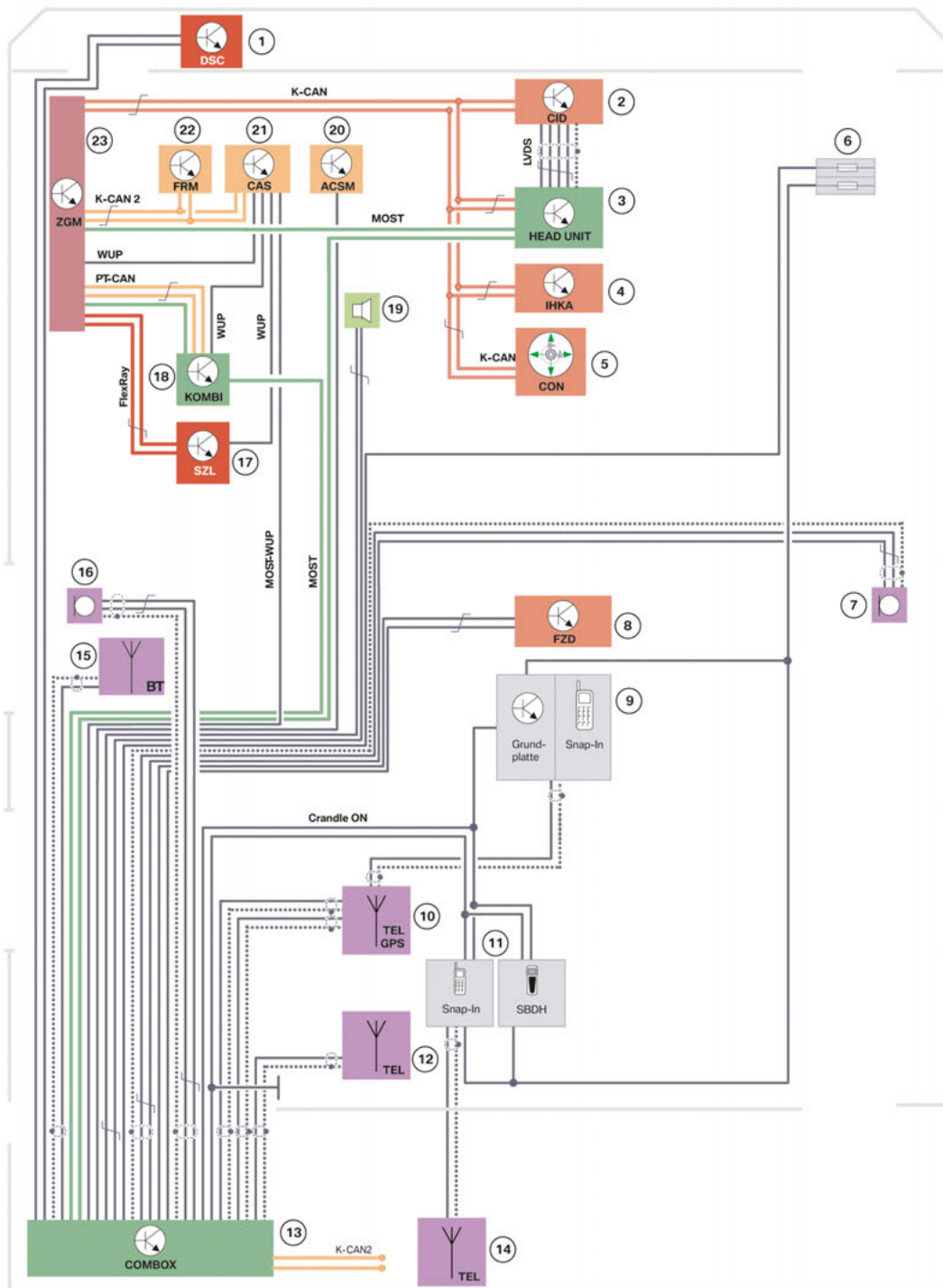
Index	Explanation
1	Front right power distribution box
2	Head unit
3	Base plate in the center console and snap-in adapter
4	AUX In connector and USB audio interface
5	Combox

Combox

2. System Wiring Diagrams

2.2. L6 (F0x) vehicles

2.2.1. Combox with telematics



TE09-2354

Combox

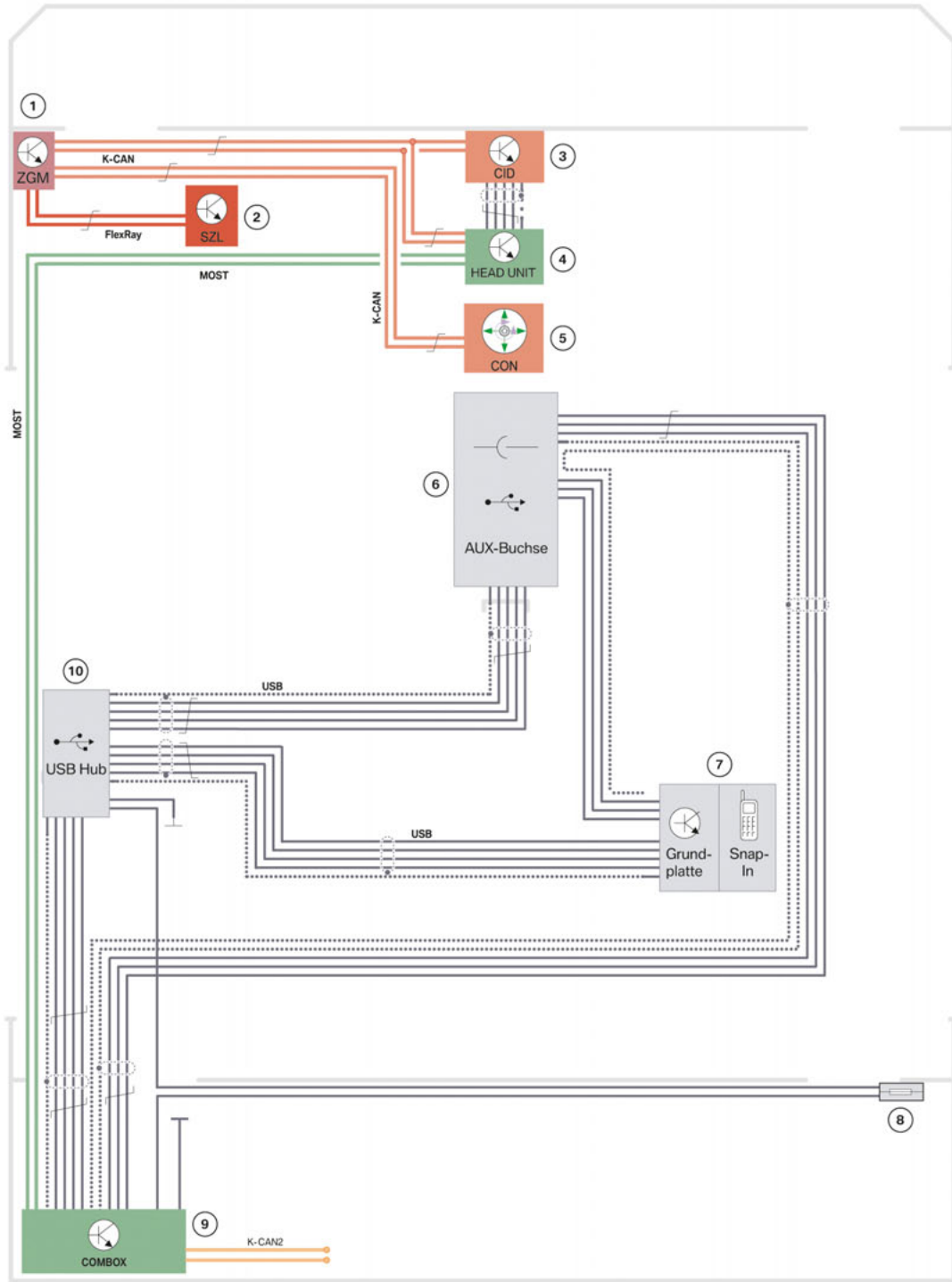
2. System Wiring Diagrams

Index	Explanation
1	Dynamic Stability Control (DSC)
2	Central Information Display (CID)
3	Head unit
4	Integrated automatic heating and air conditioning (IHKA)
5	Controller (CON)
6	Front right power distribution box
7	Microphone 2
8	Roof functions center (FZD)
9	Base plate in the center console and snap-in adapter
10	Roof telephone antenna (telephone 1 and 2, GPS)
11	Snap-in adapter and rear handset (Not US)
12	Telephone antenna backup
13	Combox
14	Telephone antenna, bumper (Not US)
15	Telephone antenna, Bluetooth
16	Microphone 1
17	Steering column switch cluster SZL)
18	Instrument cluster (KOMBI)
19	SOS speaker
20	Crash safety module (ACSM)
21	Car Access System (CAS)
22	Footwell module (FRM)
23	Central Gateway Module (ZGM)

Combox

2. System Wiring Diagrams

2.2.2. Combox audio interface (options 6FL and 6NF)



TE09-2353

Combox

2. System Wiring Diagrams

Index	Explanation
1	Central Gateway Module (ZGM)
2	Steering column switch cluster (SZL)
3	Central Information Display (CID)
4	Head unit
5	Controller (CON)
6	AUX In connector and USB audio interface
7	Base plate in the center console and snap-in adapter
8	Rear right power distribution box
9	Combox
10	USB hub (F0x only)

For vehicles without USB hub (all except F0x), both the USB audio interface and the base plate are connected directly to the Combox. If a USB hub is installed, only one USB connection (USB 1) of the Combox is used.

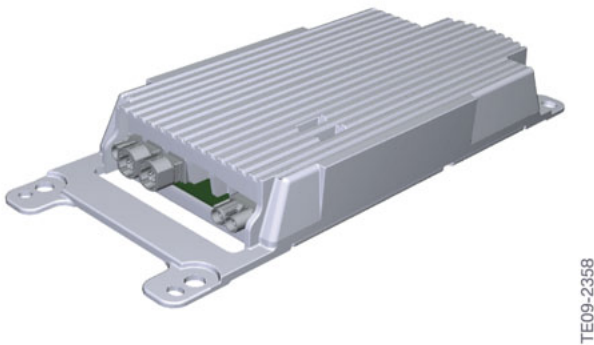
Combox

3. System Components

3.1. Combox

The Combox control unit is located in a housing that has been designed for installation without a holder. Thus in certain vehicles, the Combox is installed without an additional sheet metal holder.

In the event of a collision, however, the impact energy is transmitted directly to the control unit when there is no sheet metal holder. Therefore the Combox control unit must be checked for external damage after the vehicle has been in a collision.



Combox

3.1.1. Versions

Although the Combox is only available in combination with the BMW Assist (option 639), different versions of the control unit are used depending on the vehicle's electrical system and optional equipment.

Therefore, there are currently four versions of the Combox:

Vehicle electrical system BN2000 (L2 [E8x, E9x] and L4 [E7x] as of 09/2010)

- Combox with telematics (With BMW Assist)
- Combox with telematics and GPS receiver (With BMW Assist and Navigation)

Vehicle electrical system BN2020 (L6 [F0x] as of 09/2010)

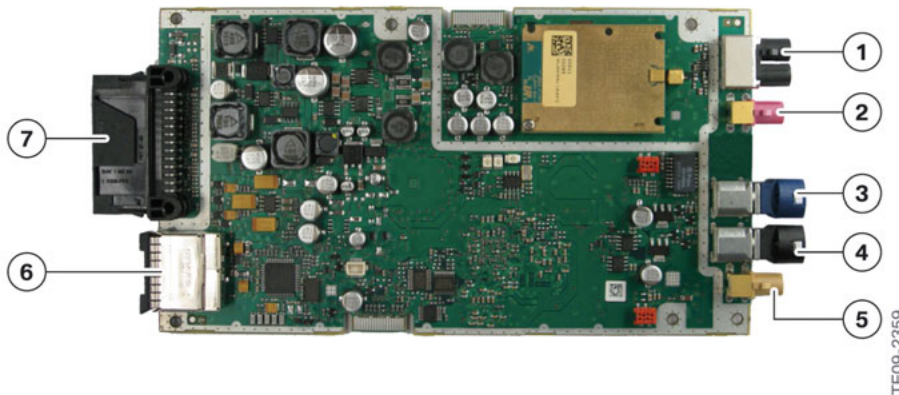
- Combox with telematics (With BMW Assist)
- Combox with telematics and GPS receiver (With BMW Assist and Navigation)

3.1.2. Interfaces and components

To make it easier to tell them apart, the system connector is white for the vehicle electrical system BN2020 and black for the vehicle electrical system BN2000. The Combox is connected in the L2 and L4 to the K-CAN and in the L6 to the K-CAN2. Because the K-CAN and K-CAN2 have different speeds, the color-coding was implemented to prevent them from being mixed up.

Combox

3. System Components



Pin assignment

Index	Explanation
1	GSM antenna and GSM backup antenna
2	GPS antenna
3	USB 2 (option 6NF for vehicles with USB hub connection of option 6NF via USB hub)
4	USB 1 (option 6FL or USB hub for vehicles with USB hub)
5	Bluetooth antenna
6	MOST
7	System connector

3.1.3. Use of the Combox in L2 vehicles as of 09/2010

The following optional equipment is available in conjunction with the Combox in the L2 vehicles:

- Radio Professional (option 663)
- BMW Assist with Bluetooth (option 639)
- iPod and USB adapter (option 6FL)
- Smartphone Integration (option 6NF)
- Navigation system (option 609)

As of 09/2010, the ULF-SBX High and TCU control units will be replaced by the Combox.

Currently, to get Bluetooth and USB audio interface functions we must order BMW Assist with Bluetooth (option 639), which includes the Combox controller. (See the table below)



BMW Assist (SA639) is currently standard equipment only on the X5 M, X6 M, 5, 6 & 7 Series. It is part of the Premium Package on all other models as of 9/2010.

Combox

3. System Components

The following table provides an overview of which options are combined with the Combox:

Optional extra	Combox installed
Option 663	No
Option 663 + option 639	Yes
Option 663 + option 639 + option 6NF	Yes
Option 663 + option 639 + option 6NF + option 6FL	Yes

3.1.4. Use in L4 and L6

A Combox is installed in L4 and L6 vehicles in combination with one of the following optional equipment packages:

- BMW Assist w/Bluetooth option 639)
- USB audio interface (option 6FL)

3.2. Bluetooth devices

Cell phones and audio players can be connected to the Combox via Bluetooth. The range and diversity of cell phones available on the market is steadily increasing. Not every Bluetooth-enabled cell phone is automatically compatible with every hands-free system. To provide the customer with a simpler, easy-to-understand overview of the currently “tested” devices, the website at <http://www.bmwusa.com/bluetooth> is being constantly updated. Customers are able to use the website to determine which devices and functions work and which do not with their specific BMW model.

The customer can now obtain information regarding the compatibility of specific tested cell phones with their vehicles (by entering the vehicle VIN number for example). A prospective BMW customer can also find out which cell phones have been tested and are compatible with specific BMW models.

Combox

3. System Components

Home 1 3 5 6 7 X3 X5 X6 Z4 M All BMWs Certified Pre-Owned Owners Experience Uniquely BMW

Build Your Own Dealer Locator Test Drive Financial Services Accessories My BMW Search

BMW USA The Ultimate Driving Machine

Owners

Overview
BMW Ultimate Service®
BMW Ultimate Protection
Maintenance Program Upgrade
BMW Assist™
BMW Roadside Assistance
Drive
Real Time Traffic Information
Exceptional Value
Residual Value
Safety
Traction
Performance
xDrive

Owner's Manuals
BMW Center Services
Certified Collision Repair Centers
Bluetooth Technology
Connecting a Music Player

BMW Members

Sign in

Not a member? Sign up to access exclusive features, manage account information and save content.
Sign up Learn more

Bluetooth Compatibility

Overview Bluetooth Benefits Currently Available Phones FAQ

Vehicle selected: 7 Series Sedan Li, Model Year 2011

3. Tested mobile phones.

13 devices

Apple iPhone 4	Apple iPhone™ 3G	Apple iPhone™ 3GS	Palm Treo PRO GSM/UMTS Unlocked
RIM/BlackBerry Pearl 3G™ 9100	RIM/BlackBerry 8820	RIM/BlackBerry Bold™ 9000	RIM/BlackBerry Bold™ 9700
RIM/BlackBerry Curve™ 8320	RIM/BlackBerry Javelin™ 6800	SonyEricsson W350a	SonyEricsson W516a
SonyEricsson W760a			

Narrow down your choice:

Reset selection

Wireless carrier: at&t

Select manufacturer: All manufacturers

Which functions do you mainly wish to use?

Handsfree
Hands-free kit.

Phone book
Access to your contacts.

Office
Manage email, calendar and notes.

Audio playback via Bluetooth
Import and listen to music and playlists.

BMWusa.com/bluetooth Internet page under "Currently available phones"

The following information is available:

- The tested phones are organized based on BMW model and wireless carrier.
- Detailed information regarding individual functions is organized based on phone manufacture and on which functions the specific phone can perform.
- Information about how to improve cell phone to vehicle compatibility by means of a downloadable Bluetooth profile software updates will be available later in 2011)

At first, only phones will be included in the device database, they will be followed by audio players and other devices that can be connected with the Combox via Bluetooth.

Combox

3. System Components

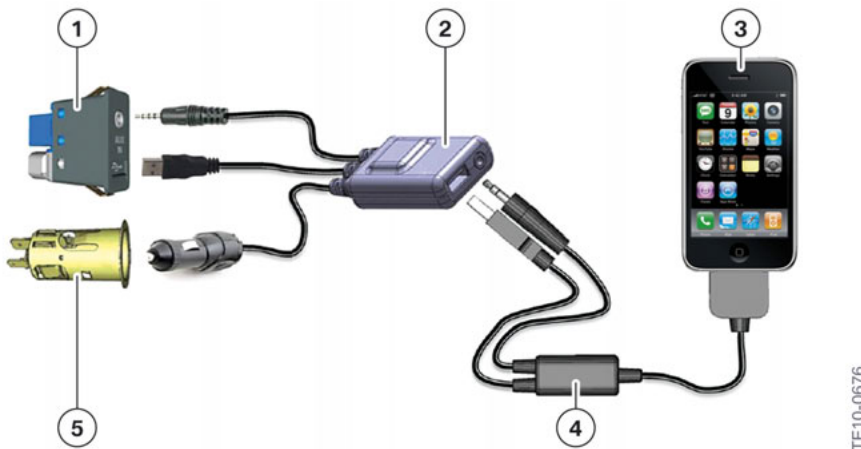
3.3. iPhone charging

In some circumstances the current audio Y-cable [which is supplied with cars equipped with a USB/ Audio interface (SA 6FL)] will not charge an iPhone 4 or 3GS sufficiently. A new charging adapter # 61 12 2 167 663 was developed to use in conjunction with the existing audio Y-cable. The charging adapter is connected in series with the audio Y-cable or the original Apple USB cable (in Combox vehicles).

This charging adapter is required due to the fact that the USB port only supports charging at a rate of 5V @ 500mA which is lower than many newer iPhones require (especially under heavy use).

The new charging adapter charging circuit is supplied through the 12V cigarette lighter and it insures an output of 5V @ 1000mA.

With regard to an “iPhone not charging” customer complaint in a TCU vehicle (especially iPhone 4) The customer may need to use the new Charging Adapter in combination with the regular Y-cable (no longer included).



Connection of the charging adapter in TCU vehicles.

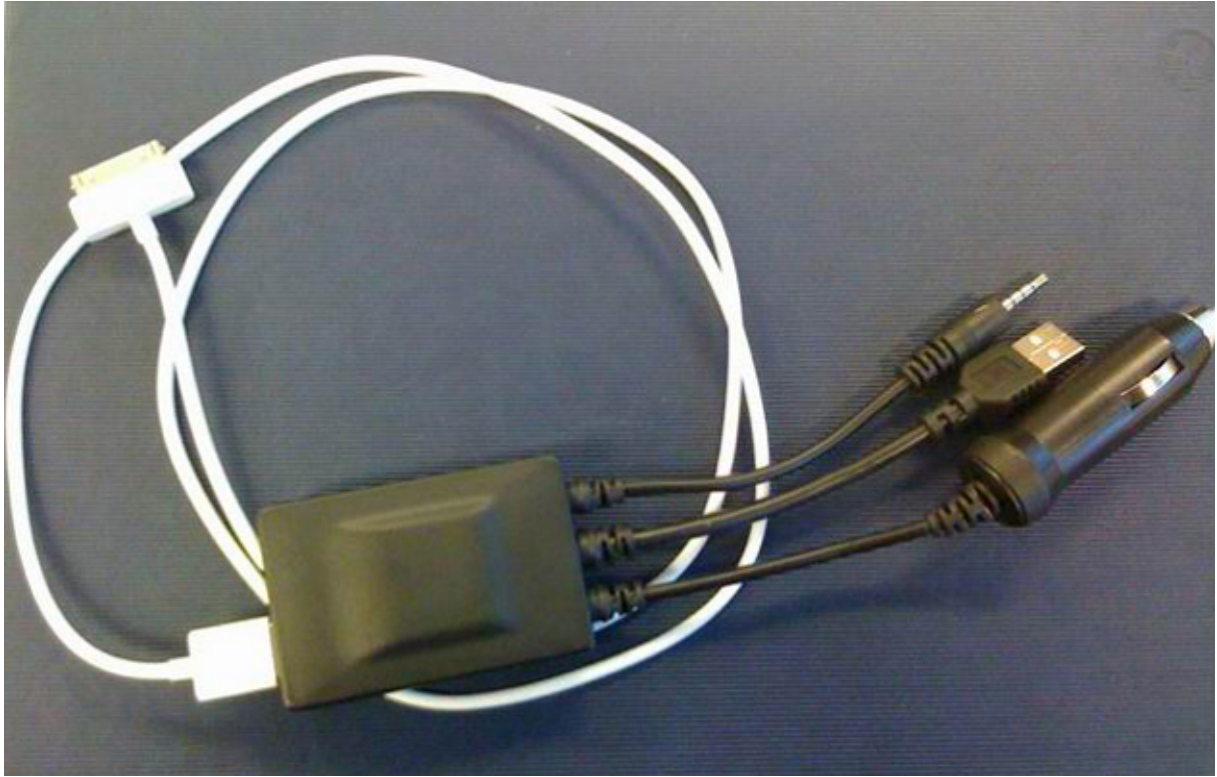
1	Aux-in USB connection
2	Charging adapter
3	Device (iPhone/iTouch)
4	Audio Y-cable
5	Cigarette lighter 12V connector

The Combox supplies 5V @ 500mA to the USB Aux-in connector as per USB plug standards and regulations.

With regard to an “iPhone not charging” customer complaint in a Combox vehicle (especially iPhone 4) The customer may need to use the new Charging Adapter in combination with the original Apple USB cable (not included).

Combox

3. System Components



Apple original cable connected to the iPhone Charging adapter



For more information regarding the iPhone/iPod Charging Adapter refer to the Aftersales Bulletin # V-13-1010-6515 Charging Cable for the iPhone.

Combox

4. Functions

4.1. Audio player via Bluetooth

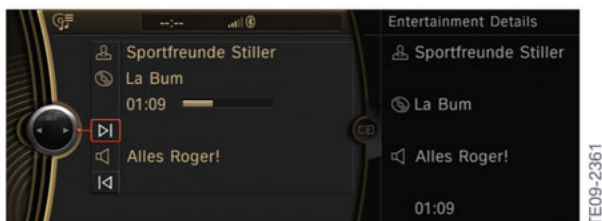
The Combox makes it possible to stream audio signals wirelessly via Bluetooth from a corresponding source. To do so, the source must support the A2DP (Advanced Audio Distribution Profile). A source can be a cell phone or MP3 player, for example. The A2DP profile is used to transmit the audio signal only.

The AVRCP (Audio Video Remote Control Profile) is used for remote control of the source. The range of functions of the remote control depends on the version of AVRCP supported in the source. Initially the Combox will support Version 1.0 and 1.3 of AVRCP. As of 03/2011 version 1.4 of AVRCP will be implemented.

Note: For optimum functionality of the audio player via Bluetooth, use only BMW recommended devices. For a list of these devices, please visit <http://www.bmwusa.com/bluetooth>



Coupling of the audio player or cell phone.



Playback of a music track via Bluetooth.

4.2. Multiple Bluetooth coupling

With the introduction of the Combox, multiple devices can be coupled via Bluetooth simultaneously. Thus the audio player of one device and the telephone function of another device can be used at the same time.

The respective function activated in each phone appears in the form of a symbol next to the name of the device in the "Add new device" display.

Combox

4. Functions



Connecting two cell phones.

Two telephones can also be connected at the same time, one will have full Office functionality (indicated by the phone/phone book icon) and the other can be used just for incoming (personal) calls as indicated by the phone icon w/o phone book. This second or "Additional Telephone" will not display the contacts nor any other Office function.

This is achieved by highlighting the device and selecting "Additional Telephone" under "Configure Phone" feature in the options menu. The features for each phone are set up and configured from this screen.



Configuring an additional phone.

4.3. Contacts with images

With the introduction of the Combox images can now be stored in contacts. These are transmitted from the cell phone via Bluetooth and stored provisionally on the Combox. The contact images from the cell phone are only displayed if the cell phone supports this function.

Note: This feature is not currently supported by all phones. For a detailed list of BMW tested phones and their features, please visit <http://www.bmwusa.com/bluetooth>.

Contacts can be created and edited using the iDrive.

The addresses can be taken over as a destination for the Navigation system and the phone numbers can be dialed directly from the contact list.

When calling someone from the address book, his or her image appears in the central information display.

Combox

4. Functions



Calling a person from the address book with image.

If another party joins a call, a list of participants with image is shown in the central information display.



Multiple callers from the address book with image.

4.4. Office

The Combox enables customers to access the SMS messages, calendar, notes, email, tasks and reminders stored on a supported cell phone. The "Office" menu item replaces the "Contacts" item in the central information display.



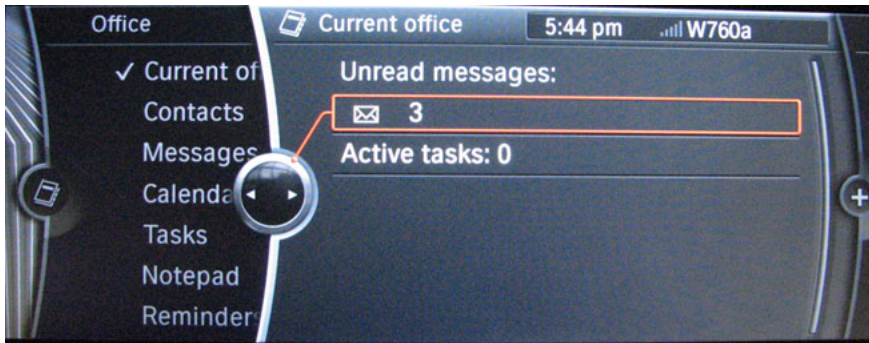
Office functions.

Although access to the cell phone is always read-only and the Combox does not modify existing data on the phone, once you open a new email via the iDrive, the status of the email on the phone will change to "read".

The "Current Office" menu item informs the user about the number of new messages, active tasks and upcoming appointments.

Combox

4. Functions



“Current Office” submenu.

Appointments of the last 30 and the next 90 days can be shown in the calendar.

If an appointment includes phone numbers or email addresses, they can be used directly or stored in the contacts.



Appointment view

Emails, SMS messages, calendar appointments, tasks and notes can be displayed and even read aloud with the text to speech function available in combination with Voice Command (option 620).

Note: The Office feature is not supported by all phones. For a detailed list of BMW tested phones and the features they support, please visit <http://www.bmwusa.com/bluetooth>.

4.5. USB audio interface



Apple devices can now be connected with the original Apple USB cable.

Combox

4. Functions

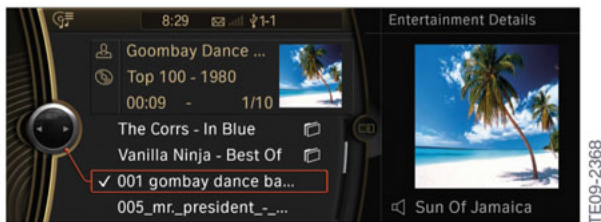
With the Combox, an iPhone or iPod can now be connected using the customer's "original" Apple USB cable. This feature still requires the optional equipment iPod and USB adapter (option 6FL). In this case all data and other information, including the audio data, are transmitted via the data lines of the USB cable. Because the device is now also charged via this cable the familiar Y-cable is no longer needed.



Non-compatible iPods (e.g. first-generation iPod Nanos) still have to be connected using the familiar Y-cable.

4.6. Album covers

For MP3 players, USB sticks, MTP players, iPhones and iPods, album covers are displayed if the MP3 file contains the album cover. For iPhones and iPods, the album cover is not displayed if the connection is made via the Y-cable. The album covers can only be displayed via USB (option 6FL) and the "original" Apple USB cable.



Album covers are displayed.

Note: When iPods are connected via the familiar Y-cable the display of the album cover function is not supported.

4.7. Video two-cable connection (Updated 03/2011)

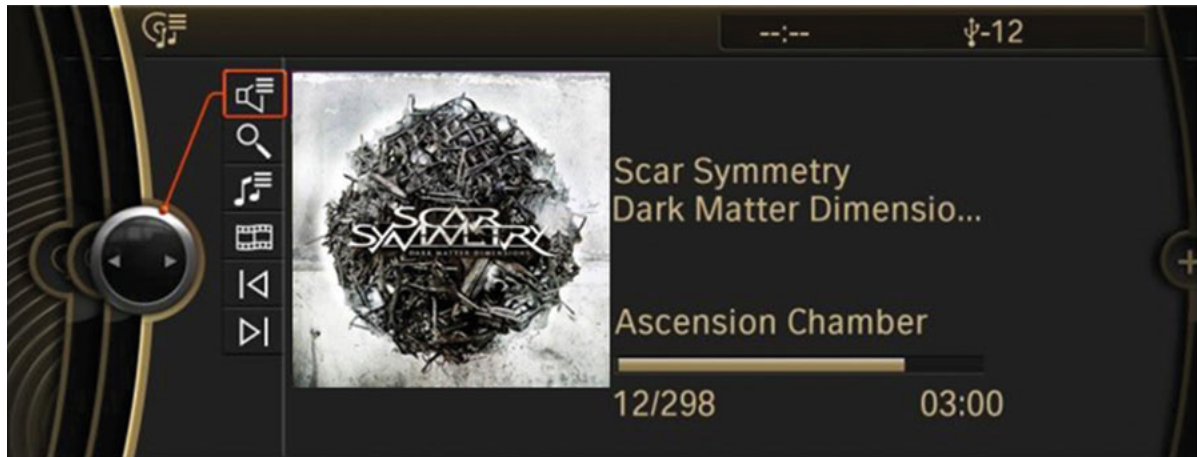
The ability to play videos from an iPhone on the central information display via a two-cable connection was **introduced as of 03/2011** with the launch of the F12 and BMW Apps (SA 6NR). To do so, in addition to the USB, the analogue video output of the iPhone snap in adapter and a video ready cradle must be connected to the vehicle. The cradle transmits the video information in analogue form from the device to the CIC headunit with the Combox providing control through the USB data lines.

4.7.1. Video playback

The new "video base plate" makes it possible to play video clips in BMW vehicles. For safety reasons, this function is only supported when the vehicle is stationary. The video clips are displayed in the Central Information Display CID only, and not on the rear entertainment displays. The video signal is sent to the head unit from the iPhone™ via the "Media" snap-in adapter and base plate (see ST1108 "BMW Apps/ConnectedDrive"). Videos can be selected and played from the "CD/Multimedia – External audio devices" menu and the "ConnectedDrive – PlugIn" menu.

Combox

4. Functions



Playing back a video clip stored in the iPhone™



For more information regarding the Combox Audio/Video Interface function refer to ST1108 “BMW Apps/ConnectedDrive” available on TIS and ICP.

4.8. Software updates

The Combox will enable the customer for the first time to update the firmware of a system component. To update the Combox, the Bluetooth profile software update must be downloaded from the BMW website www.bmwusa.com/bluetooth and stored on a USB stick. For this purpose, any conventional USB stick with sufficient storage capacity can be used. The file is then transferred from the USB stick to the Combox via the USB audio interface (option 6FL) in the center console.

Software update by the customer (KISU).

The customer can purchase a USB stick in the form of a BMW flat key from a BMW Service Center. This means the Service Advisor/Parts Sales Consultant can perform a one-off software update for the customer. The customer can use the USB stick to perform further software updates himself or, depending on which products are available, do this at the dealership.

Note: This function is still in development and is expected later in 2011. Please check the www.bmwusa.com/bluetooth website for more information.

Combox

4. Functions

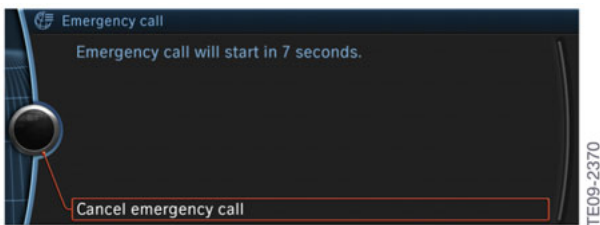
4.9. Telematics

With the introduction of the Combox the Telematic Control Unit (TCU) is no longer needed nor installed.

All BMW vehicle telematics functions are enabled by the Combox with no additional control units required.

4.10. Emergency call

In BMW vehicles with Combox, the emergency call is carried out using NGTP (Next Generation Telematics Protocol). The customer will not notice any difference from the existing emergency call system. With the Combox, the emergency call is always placed via the backup speaker.



Emergency call display screen.



Bayerische Motorenwerke Aktiengesellschaft
Händlerqualifizierung und Training
Röntgenstraße 7
85716 Unterschleißheim, Germany